representative of the quantity of light sensed by the detectors, which light is reflected by the elastic disc as it is bent in response to torque or couple forces acting on the rate sensor.

The elastic disc 28 is housed within a compartment 30 of housing 10 with a flange 14 forming one end of compartment 30 and an inwardly annularly depending flange 32 which supports a pickoff plate 34 forming the other end of compartment 30 (column 2, lines 40-46). The pick-off plate 34 which is mounted to the housing 10 at the depending flange 32 includes a light source 36 which is axially aligned with the armature shaft 20, with the light being pointed at the elastic rotor disk 28. A pair of light detectors 38 and 40 are also mounted on the pick-off plate 34, 180 degrees apart on either of the orthogonal x, y axis of the rate sensor for the purpose of detecting the light from source 36 which is reflected back to the pick-off plate 34 by the elastic rotor 28. (column 2, lines 47-54.) Figure 4 of *Flusche* clearly illustrates the operative function of the *Flusche* rate sensor, the physical distortion of the elastic rotor disc 28 in response to forces acting on the rate sensor. (column 4, lines 30-32 and lines 57-63.)

The present invention, in contrast to the *Flusche* device, operates on a different sensing principle. Rather than having an elastic disc rotor that distorts with the impact of yaw or pitch torque on the unit, the present invention utilizes a rigid rotor having a perpendicular circular flange on one surface. The rotor is mounted in a flexible suspension member which allows the entire rotor to tilt. The flange of the rotor is located between a light source and a light sensor mounted on a stationary plate. The movement of the flange of the rotor in between the light source and the light sensor is an indication of the angular rotation rates applied to the gyro device.

Flusche does not show or teach 1) a rotor "having a circular flange on one surface thereof", or 2) a suspension member having "a flexible flange concentric with and affixed to said

rotating shaft and said rotor", or 3) a light source for emitting light "substantially perpendicular to a surface of said circular flange", or 4) a light sensor disposed "on a side of said circular flange opposite of said light source for producing an electrical signal."

Applicant respectfully requests that this rejection be withdrawn.

Claims 3, 7, 9, 13 and 16 were rejected under 35 U.S.C. § 103(a) as unpatentable over *Flusche* in view of *Kan, et al.* (US 4,914,291). Applicant respectfully traverses. *Flusche* does not disclose or teach any of the four elements noted above which are recited in claim 1 and claim 10. Claims 3, 7, 9, 13 and 16 depend from claim 1 or claim 10. *Kan* does not show or teach any of these four elements, let alone the added limitations of claims 3, 7, 13 and 16.

Applicant respectfully requests that this rejection be withdrawn.

Claims 17 and 20 were rejected under 35 U.S.C. § 103(a) as unpatentable over *Flusche* in view of *Duncan* (US 4,269,072). Applicant respectfully traverses.

Flusche does not disclose or teach a rotor having 1) "a circular flange extending from and perpendicular to one surface thereof and having a notch therein", or 2) a suspension member having "a flexible flange concentric with and affixed to said rotor", or 3) a light source disposed on a stationary plate for "emitting light perpendicular to a surface of said circular flange of said rotor", or 4) a light sensor disposed on the stationary plate "on a side of said circular flange opposite of said light source." With respect to Claim 20, the "suspension member flexible flange 32" asserted in the Office Action is really an inwardly annularly depending flange 32 which is one structural end of compartment 30 of housing 10 of *Flusche*'s rate sensor. (column 2, lines 43-46.)

Applicant respectfully requests that this rejection be withdrawn.

Claims 18 and 19 were rejected under 35 U.S.C. § 103(a) as unpatentable over *Flusche* in view of *Duncan* as applied to Claims 17 and 20 above and further in view of *Paquet, et al.* (US 5,138,883). Applicant respectfully traverses.

Claims 18 and 19 depend from Claim 17 and further limit that claim. Neither *Duncan* nor *Paquet* shows or teaches the four elements noted above which are missing from *Flusche*.

Applicant respectfully requests that this rejection be withdrawn.

In light of the above analysis of the prior art references, Applicant believes that all the claims are allowable and respectfully requests an early indication of their allowance and the passing of this case to issue.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231 on January 10, 2003.

By: Sandy Malec

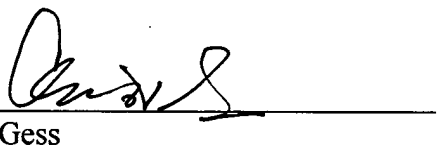
Sandy Malec

Signature

Dated: January 10, 2003

Very truly yours,

SNELL & WILMER L.L.P.



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